

We claim:

1. A method for assaying INGAP in a test sample, comprising:

contacting a solid support comprising bound antibodies with a test sample,

wherein the antibodies specifically bind to an amino acid sequence

FLSWVEGEESQKKLPSSRITC (SEQ ID NO: 1) of INGAP protein, whereby

INGAP protein in the test sample binds to the solid support;

removing test sample which has not bound to the solid support;

contacting the solid support with a quantity of a labeled INGAP molecule,

whereby all or a portion of the quantity of labeled INGAP molecule binds to the solid support;

removing labeled INGAP molecule which has not bound to the solid support;

determining the amount of labeled INGAP molecule bound to the solid support wherein labeled INGAP molecule bound to the solid support is inversely related to INGAP protein in the test sample.

2. The method of claim 1 further comprising:

generating a standard curve using a series of control samples having known quantities of INGAP;

comparing the amount of marker protein bound to the solid support with the test sample to the standard curve, whereby an amount of INGAP in the test sample is determined.

3. The method of claim 1 wherein the labeled INGAP molecule comprises a fusion protein comprising INGAP protein and a marker protein.

4. The method of claim 3 wherein the marker protein is enzymatically active.

5. The method of claim 3 wherein the marker protein is fluorescent.

6. The method of claim 4 wherein a chromogenic substrate is contacted with the marker protein to determine the amount of marker protein bound to the solid support.
7. The method of claim 1 wherein the labeled INGAP molecule is radioactively labeled.
8. A method for assaying INGAP in a test sample, comprising:  
contacting (a) antibodies which specifically bind to an amino acid sequence FLSWVEGEESQKLPSSRITC (SEQ ID NO: 1) of INGAP protein, (b) a test sample which may contain INGAP protein, and (c) a labeled INGAP molecule;  
determining the amount of labeled INGAP molecule bound to the antibodies, wherein the amount of labeled INGAP molecule bound to the antibodies is inversely related to INGAP protein in the test sample.
9. The method of claim 8 wherein the labeled INGAP molecule is a fusion protein comprising INGAP protein and a marker protein.
10. The method of claim 8 further comprising;  
generating a standard curve using a series of control samples having known quantities of INGAP;  
comparing the amount of labeled INGAP molecule bound to the antibodies in the presence of the test sample to the standard curve, whereby an amount of INGAP in the test sample is determined.
11. The method of claim 8 wherein prior to the step of determining, the antibodies are separated from components which are not specifically bound to the antibodies.
12. The method of claim 9 wherein the marker protein is enzymatically active.
13. The method of claim 9 wherein the marker protein is fluorescent.
14. The method of claim 12 wherein a chromogenic substrate is contacted with the marker protein to determine the amount of marker protein bound to the antibodies.

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15. An isolated antibody preparation which specifically binds to an amino acid sequence FLSWVEGEESQKKLPSSRITC as shown in SEQ ID NO: 1.
  16. The antibody preparation of claim 15 wherein the antibody is monoclonal.
  17. The antibody preparation of claim 15 wherein the antibody is polyclonal.
  18. The antibody preparation of claim 15 wherein the antibody is affinity-purified.
  19. The antibody preparation of claim 15 wherein the antibody is bound to a solid support.
  20. The antibody preparation of claim 15 wherein the antibody does not specifically bind to other portions of INGAP protein.
  21. The antibody of claim 15 wherein the antibody does not specifically bind to other human proteins.
  22. The antibody preparation of claim 15 wherein preparation does not specifically bind to other portions of INGAP protein.
  23. The antibody of claim 15 wherein the preparation does not specifically bind to other human proteins.
  24. A method for assaying INGAP in a test sample, comprising:
    - contacting a solid support comprising bound antibodies with a test sample, wherein the antibodies specifically bind to an amino acid sequence selected from the group consisting of residues 104-118 (IGLHDP SHGTLPN GS; SEQ ID NO:2), 139-152 (IAADRGYCAVLSQK; SEQ ID NO:3), and 151-164 (QKSGFQKWRDFNCE; SEQ ID NO:4) of INGAP protein, whereby INGAP protein in the test sample binds to the solid support;
    - removing test sample which has not bound to the solid support;
    - contacting the solid support with a quantity of a labeled INGAP molecule, whereby all or a portion of the quantity of labeled INGAP molecule binds to the solid

support;

removing labeled INGAP molecule which has not bound to the solid support;

determining the amount of labeled INGAP molecule bound to the solid support wherein labeled INGAP molecule bound to the solid support is inversely related to INGAP protein in the test sample.

25. The method of claim 24 further comprising:

generating a standard curve using a series of control samples having known quantities of INGAP;

comparing the amount of marker protein bound to the solid support with the test sample to the standard curve, whereby an amount of INGAP in the test sample is determined.

26. The method of claim 24 wherein the labeled INGAP molecule comprises a fusion protein comprising INGAP protein and a marker protein.

27. The method of claim 26 wherein the marker protein is enzymatically active.

28. The method of claim 26 wherein the marker protein is fluorescent.

29. The method of claim 27 wherein a chromogenic substrate is contacted with the marker protein to determine the amount of marker protein bound to the solid support.

30. The method of claim 24 wherein the labeled INGAP molecule is radioactively labeled.

31. A method for assaying INGAP in a test sample, comprising:

contacting (a) antibodies which specifically bind to an amino acid sequence selected from the group consisting of residues 104-118 (IGLHDPSHGTLPNGS; SEQ ID NO:2), 139-152 (IAADRGYCAVLSQK; SEQ ID NO:3), and 151-164 (QKSGFQKWRDFNCE; SEQ ID NO:4) of INGAP protein, (b) a test sample which may contain INGAP protein, and (c) a labeled INGAP molecule;

determining the amount of labeled INGAP molecule bound to the antibodies, wherein the amount of labeled INGAP molecule bound to the antibodies is inversely related to INGAP protein in the test sample.

32. The method of claim 31 wherein the labeled INGAP molecule is a fusion protein comprising INGAP protein and a marker protein.
33. The method of claim 31 further comprising;  
generating a standard curve using a series of control samples having known quantities of INGAP;  
comparing the amount of labeled INGAP molecule bound to the antibodies in the presence of the test sample to the standard curve, whereby an amount of INGAP in the test sample is determined.
34. The method of claim 31 wherein prior to the step of determining, the antibodies are separated from components which are not specifically bound to the antibodies.
35. The method of claim 32 wherein the marker protein is enzymatically active.
36. The method of claim 32 wherein the marker protein is fluorescent.
37. The method of claim 36 wherein a chromogenic substrate is contacted with the marker protein to determine the amount of marker protein bound to the antibodies.
38. An isolated antibody preparation which specifically binds to an amino acid sequence selected from the group consisting of residues 104-118 (IGLHDP SHGTL PNGS; SEQ ID NO:2), 139-152 (IAADRGYCAVLSQK; SEQ ID NO:3), and 151-164 (QKSGFQKWRDFNCE; SEQ ID NO:4).
39. The antibody preparation of claim 38 wherein the antibody is monoclonal.
40. The antibody preparation of claim 38 wherein the antibody is polyclonal.
41. The antibody preparation of claim 38 wherein the antibody is affinity-purified.
42. The antibody preparation of claim 38 wherein the antibody is bound to a solid

support.

43. The antibody preparation of claim 38 wherein the antibody does not specifically bind to other portions of INGAP protein.
44. The antibody of claim 38 wherein the antibody does not specifically bind to other human proteins.
45. The antibody preparation of claim 38 wherein preparation does not specifically bind to other portions of INGAP protein.
46. The antibody of claim 38 wherein the preparation does not specifically bind to other human proteins.